Byrne Creek Watershed Business Inspection and Education Program

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Abstract
Environment Canada and the City of Burnaby have jointly launched an education and business inspection program to reduce discharges of chemicals from industrial and commercial establishments into storm sewers that lead to Byrne Creek, in Burnaby, BC. The inspection component of the program has also been assisted by staff from the Ministry of Water, Land and Air Protection.

To-date, business inspections and accompanying cross-connection dye-tests have been completed for the upper watershed area, and educational materials have been developed and distributed. Progress is also being made on the development of business-specific Best Management Practices (BMP) guides, and the sampling of stormwater for the identification of upstream contaminant sources. The complete findings of this program, including a description of lessons learned and future recommendations, will be summarized in a final report in early 2003.

This program was funded in part by the Georgia Basin Ecosystem Initiative (GBEI) - a partnership that provides tools, support and a framework for action towards sustainability in the Georgia Basin.

Executive Summary
Between December 2001 and November 2002, Environment Canada (EC) and the City of Burnaby (the City) jointly launched an education and business inspection program to reduce the discharge of pollutants from industrial and commercial establishments into storm sewers that lead to Byrne Creek, in Burnaby, BC. The inspection component of the program was also assisted by staff from the Ministry of Water, Land and Air Protection (MWLAP).

Photo 1: Distribution of brochure to homes and business within the Byrne Creek watershed.

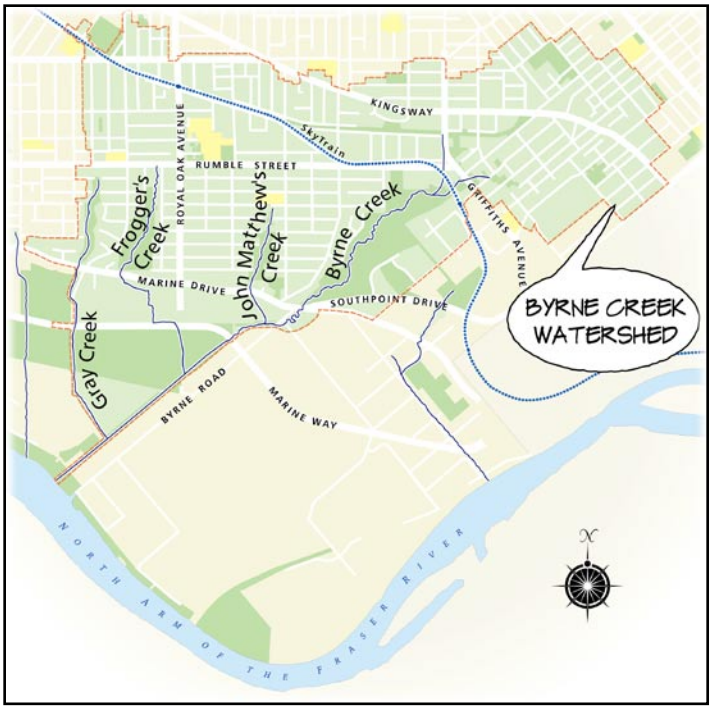
An educational brochure was developed and distributed (Photo 1), and business inspections and accompanying cross-connection dye-tests were completed for the upper watershed area. Practical Pollution Prevention manuals were also developed for specific business sectors, and storm sewer effluent was sampled to identify any upstream contaminant sources.

The complete findings of this program, including a description of lessons learned and future recommendations will be published in 2003 under the Georgia Basin Ecosystem Initiative (GBEI) report series. This program was funded in part by the GBEI—a partnership that provides tools, support and a framework for action towards sustainability in the Georgia Basin.

Background
Byrne Creek watershed is the largest watershed in the southern end of Burnaby, BC, and is composed of Byrne Creek and three tributaries: John Matthews Creek, Frogger's Creek and Gray Creek (Map 1).

The City and the Byrne Creek Streamkeepers have been active in enhancing fish habitat within the Byrne Creek watershed by undertaking clean-ups, stocking and monitoring coho and chum salmon (since late 1970's), constructing a dyked channel west of Byrne Creek Road (1980's), and constructing the spawning and rearing habitat in Byrne Creek at Marine Drive (1999).

Significant effort has also been put toward the identification of spill sources, water quality sampling, and raising awareness of impacts to the creek by governmental agencies and the Byrne Creek Streamkeepers. However, a focussed educational and joint agency audit of commercial and industrial facilities was needed to ensure that pollutants were not being disposed of inappropriately, particularly into the storm sewer system. To this end, Environment Canada and the City



Map 1: Byrne Creek watershed.

collaborated to establish a one-year *Byrne Creek Watershed Business Inspection and Education Program*. The following sections outline the tasks that have been undertaken as a result of this collaboration, and provide a summary of the various pollution sources identified and removed from the upper watershed area of Byrne Creek.

Objectives

The objectives of the *Byrne Creek Watershed Business Inspection and Education Program* were to: develop and distribute informational brochures, conduct inspections of commercial and industrial establishments within the Byrne Creek watershed, develop business-specific Practical Pollution Prevention manuals, conduct limited water quality sampling (Photo 2), and increase community awareness of potential impacts to the watershed. A total of $60,000 Cdn (cost-shared between EC and the City) and a significant level of in-kind support were required to deliver the various program components identified.

It was expected that the water quality knowledge and inspection expertise of EC and MWLAP inspectors, and the local area knowledge and inspection expertise of City staff, could be used to identify and limit the discharge of pollutants into Byrne Creek.

Program Results

Photo 2: Identification of illicit discharges through automatic storm sewer sampling.

As a result of the program, the City, the Byrne Creek Streamkeepers, EC, and MWLAP collaborated on the development of a new educational brochure, entitled: "Byrne Creek Watershed Needs Your Help...", which was distributed to approximately 12,000 businesses and residences throughout the watershed. As well, Practical Pollution Prevention manuals for the automobile and commercial printing industries were developed and distributed (Photo 3).

Staff from the City, MWLAP, and EC's Enforcement Program conducted more than 200 joint agency business inspections and cross-connection dye-tests in the upper Byrne Creek watershed (where applicable). The authority to enter onto premises and to conduct business inspections was given to staff through the Watercourse Bylaw (the City), the BC Waste Management Act (MWLAP), and the Fisheries Act (EC). As a result of the *Byrne Creek Business Inspection and Education Program*, a number of pollution sources were identified and removed from entry into Byrne Creek.

In total, 10 catch basins or oil-water separators (containing sediments, hydrocarbons, cleaning agents and other materials) were pumped out, two cross-connections to the storm sewer system were corrected, and metal shavings from one site were properly secured to prevent further leaching into the storm sewer system. As well, two car wash facilities have committed to establishing a connection to the sanitary sewer system in 2003.

A 72-hour fish bioassay at three creek locations was also used to compare the survival rate of hatchery-raised coho smolts

and chum fry, with native cutthroat trout smolts. The results from this study supported historic observations of hatchery-raised coho smolts having the lowest survival rate in Byrne Creek.

Awareness for Burnaby's waterways was also increased at two major environmental events: *Environment Week* (June 3 to June 9, 2002) and *BC Rivers Day* (September 29, 2002). At these events, interactive watershed models, yellow fish-painting kits and informational materials were shared with the public, in order to assist them with preserving the health of their watersheds. Awareness of watershed impacts among the business community is also being fostered through the development of key partnerships with various industry associations in Burnaby.

Ongoing interagency and streamkeeper efforts, as well as more favourable weather conditions in the 2002 Spring to Fall period, may have contributed to a larger than expected number of salmonids in the Byrne Creek sediment pond in September 2002, and a higher than normal return of chum salmon in October 2002.

Conclusion

A joint educational and inspection program has been completed between EC, the City, and MWLAP to address the improper discharge of pollutants into storm sewers that lead to Byrne Creek (Photo 5). A number of program components were successfully delivered including: educational material development and delivery, water quality sampling, business inspections, pollutant source identification and removal, and public outreach.

It is expected that continued watershed monitoring, public outreach, and industry collaboration will help to maintain and build-upon many of the positive outcomes achieved by the *Byrne Creek Watershed Business Inspection and Education Program*.

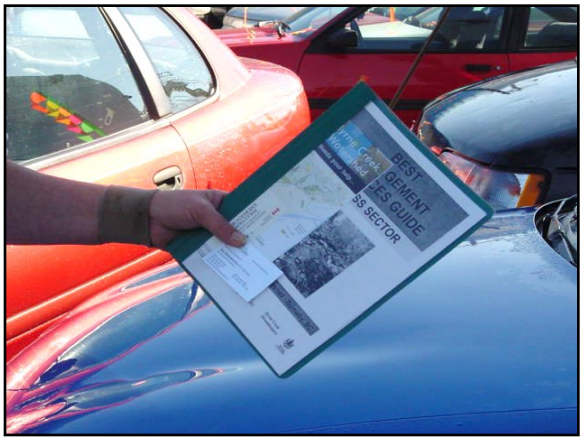


Photo 3: Dissemination of pollution prevention materials to businesses.

Photo 4: Returned chum salmon to Byrne Creek.

Photo 5: Byrne Creek headwaters.